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*Ionospheric Data Report — June 1965*

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PJC

**IONOSPHERIC DATA: BANGKOK, THAILAND**

*Compiled by:* VICHAI T. NIMIT

*Prepared for:*

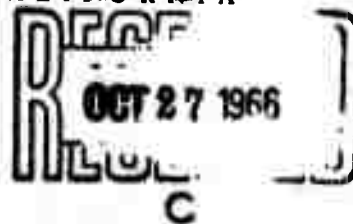
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FORT MONMOUTH, NEW JERSEY

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THAI-U.S. MILITARY RESEARCH AND DEVELOPMENT CENTER  
SUPREME COMMAND HEADQUARTERS  
BANGKOK, THAILAND



STANFORD RESEARCH INSTITUTE  
MENLO PARK, CALIFORNIA





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⑪ Aug 1965

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BANGKOK, THAILAND

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## I INTRODUCTION

Ionospheric observations are being carried out at the Laboratory of the Military Research and Development Center at Bangkok, Thailand, a joint United States-Thailand organization. A Model C-2 vertical-incidence sounder supplied and operated by the United States Army Radio Propagation Agency has been installed there. Table I gives pertinent information about the site.

Table I  
VERTICAL-INCIDENCE SOUNDER SITE  
AT BANGKOK, THAILAND

Geographic		Geomagnetic	
Latitude	Longitude	Latitude	Longitude
13.73°N	100.57°E	2.5°N	169.83°E

Dip angle: 10°N

Distance from dip equator: 450 km

Equipment:

Instrument: Type C2 (automatic)

PRF: 60 pps

Frequency sweep time: 30 sec

Frequency sweep range: 1 to 25 Mc

Pulse duration: 50  $\mu$ sec

Peak pulse power: approximately 10 kw.

The cooperation and participation of staff members of the Thailand Ministry of Defense and the support of the United States Advanced Research

Projects Agency, the United States Army Electronics Laboratories, and the United States Army Radio Propagation Agency made it possible for the data presented in this report to be accumulated.



## II TERMINOLOGY AND SYMBOLS

The terminology and symbols used in this data report are in accordance with the conventions established by the World Wide Soundings Committee.<sup>1</sup>

### A. TERMINOLOGY

$\left. \begin{array}{l} f_o F_2 \\ f_o F_1 \\ f_o E \end{array} \right\}$  The ordinary wave critical frequency for the F<sub>2</sub> and F<sub>1</sub> layers and the E region, respectively.

$f_o E_s$  The ordinary wave top frequency corresponding to the highest frequency at which a mainly continuous E<sub>s</sub> trace is observed.

$f_b E_s$  The blanketing frequency of an E<sub>s</sub> layer, i.e., the lowest ordinary wave frequency at which the E<sub>s</sub> layer begins to become transparent. (This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.)

$f_{min}$  The frequency below which no echoes are observed.

$M(3000)F_2$  The maximum usable frequency factor for a path of 3000 km for transmission by the F<sub>2</sub> layer.

$h' F_2$  The minimum virtual height of the ordinary wave trace for the highest stable stratification in the F region.

$h' F$  The most significant F-region virtual height parameter, that for the lowest F-region stratification. (Thus  $h' F$  is identical with the current  $h' F_2$  when F-region stratification is absent, i.e., at night, and with current  $h' F_1$  when F<sub>1</sub> stratification is present.)

---

<sup>1</sup>W. R. Piggott and K. Rawer, URSI Handbook of Ionogram Interpretation and Reduction of the World Wide Sounding Committee (Elsevier Publishing Company, Amsterdam, London, New York, 1961).

## B. DESCRIPTIVE LETTERS

Certain effects observed on ionograms may make it difficult or impossible to obtain accurate numerical values. The descriptive letters listed below, when used alone indicate, in general, the presence of a phenomenon that may have influenced the measurement. Qualifying letters (Sec. C) indicate the nature of the uncertainty.

- A A lower thin layer present, e.g., E<sub>s</sub>
- B Absorption in the vicinity of  $f_{min}$
- C Any non-ionospheric reason
- D The upper limit of the normal frequency range
- E The lower limit of the normal frequency range
- F Spread echoes present
- G Ionization density of the layer too small for measurement
- H Stratification present
- L No sufficiently definite cusp between layers of the trace
- M Ordinary and extraordinary components indistinguishable
- N Conditions such that the measurement cannot be interpreted
- O Measurement referring to the ordinary component
- R Attenuation in the vicinity of a critical frequency
- S Interference or atmospherics
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful
- V Forked trace
- W Echo lying outside the height range recorded
- X Measurement referring to the extraordinary component
- Y Intermittent trace
- Z Third magneto-ionic component present.

## C. QUALIFYING LETTERS

- D Greater than. . .
- E Less than. . .

- I An interpolated value
- J Ordinary component characteristic deduced from the extraordinary component
- O Extraordinary component characteristic deduced from the ordinary component
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful
- U Uncertain numerical value
- Z Measurement deduced from the third magneto-ionic component.

#### D. DESCRIPTION OF STANDARD TYPES OF E<sub>s</sub>

The eight standard types of E<sub>s</sub> are identified by lower-case letters: f, l, c, h, q, r, a, and s. These letters suggest the corresponding names, flat, low, cusp, high, equatorial, retardation, auroral, and slant, respectively, but are not restrictive. The letter n is used to designate an E<sub>s</sub> trace that does not correspond to one of the eight types. The classifications are:

- f An E<sub>s</sub> trace showing no appreciable increase of height with frequency, usually relatively solid at most latitudes. (This classification may be used only at night; it appears that flat E<sub>s</sub> traces observed in the daytime are classified according to their virtual height: h or l.)
- l A flat E<sub>s</sub> trace at or below the normal E-region minimum virtual height in the day or below the E-region minimum virtual height at night.
- c An E<sub>s</sub> trace showing a relatively symmetrical cusp at or below f<sub>o</sub>E. (This is usually continuous with the normal E trace, although when the deviative absorption is large, part or all of the cusp may be missing—usually a daytime type.)
- h An E<sub>s</sub> trace showing a discontinuity in height with the normal E-region trace at or above f<sub>o</sub>E and an asymmetrical cusp. (The low-frequency end of the E<sub>s</sub> trace lies clearly above the high-frequency end of the normal E trace—usually a daytime type.)
- q An E<sub>s</sub> trace that is diffuse and nonblanketing over a wide frequency range, the spread being most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)
- r An E<sub>s</sub> trace that is nonblanketing over part or all of its frequency range, showing an increase in virtual height at the high-frequency

end similar to group retardation. (This is distinguished from the usual group retardation—as in the case of an occulting thick E region—by the lack of group retardation in the F traces at corresponding frequencies and the lack of complete blanketing.)

- a An E<sub>s</sub> pattern having a well-defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. (These sometimes extend over several hundred kilometers of virtual height.)
- s A diffuse E<sub>s</sub> trace that rises steadily with frequency, usually emerging from another type of E<sub>s</sub> trace. (The rising trace alone is classified as s; the horizontal trace is classified separately. At high latitudes, the slant trace usually starts to rise from a horizontal E<sub>s</sub> trace, such as l or f, at frequencies that greatly exceed the E-region critical frequency, e.g., about 6 Mc; whereas at low latitudes it usually rises from equatorial-type E<sub>s</sub>, q, c, or h, at frequencies near the regular E critical frequency. Type s is never used to determine f<sub>o</sub>E unless echoes clearly identifiable as E<sub>s</sub> echoes are seen.)
- n An E trace that cannot be classified as one of the standard types. (This must not be used for intermediate cases between any two classes. A choice should always be made whenever possible, even if it is doubtful.)

## E. MULTIPLE REFLECTIONS FROM E<sub>s</sub>

When the ionogram shows the presence of multiple reflections from E<sub>s</sub>, the number of traces seen will be recorded with the letter indicating the type.

Characteristic: fmin

IONOSPHERIC DATA  
Sweep: 1 Mc to 25 Mc in 0.5 minute

Observed at:

June 1965

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	022*	E015S	013	E012S	013	B	E025S	E026S	E030S	E029S	030	E030S	E030S	E030S
2	E023S	E017S	013	B	012	E015S	E025S	E025S	025	E023S	E029S	E024S	E025S	E028S
3	E020S	017	017	012	E	E016S	E023S	E028S	E025S	027	E028S	E030S	E030S	E030S
4	E020S	E014S	E	E012S	E	E016S	E025S	E024S	E030S	E027S	034	E030S	E035S	E030S
5	E021S	E015S	E014S	E012S	E	E018S	E025S	E024S	E028S	E030S	032	E030S	E030S	E030S
6	E022S	E015S	E	013	E	E017S	E024S	E025S	E029S	E029S	E030S	E030S	E030S	E030S
7	E019S	E014S	E	E	E	E018S	E023S	E024S	E028S	E030S	E030S	E028S	E030S	E030S
8	E021S	E014S	013	011	013	E013S	E023S	E023S	E024S	E024S	E026S	E030S	E028S	E028S
9	E022S	018	E	015	014	E018S	E024S	E025S	E024S	E027S	E024S	E020S	E026S	E030S
10	E017S	016	E011S	016	017	019	E021S	E022S	E023S	E030S	030	E030S	E030S	E034S
11	E018S	E016S	E016S	E	E	E016S	E021S	E025S	030	E028S	E025S	E025S	E028S	E030S
12	E020S	E015S	E013S	014	013	E018S	E023S	E023S	E025S	034	E030S	E029S	E030S	E030S
13	E020S	E014S	016	015	014	017	E022S	E022S	025	030	E030S	E034S	E030S	E030S
14	E020S	E016S	014	017	011	E017S	E022S	E024S	E025S	030	E030S	E030S	E030S	E030S
15	E020S	018	015	014	012	017	E021S	E023S	026	E026S	E030S	E030S	E032S	E030S
16	E020S	E016S	E016S	014	013	E018S	E023S	E023S	E024S	E026S	E030S	E030S	E027S	E030S
17	E020S	E014S	E	E	E	E018S	E023S	E023S	C	C	C	C	034	030
18	E020S	E016S	E	E	013	E017S	E024S	E024S	E026S	E026S	E026S	E026S	025	E028S
19	E020S	E016S	014	016	E	E016S	E025S	E024S	025	034	E028S	E030S	E027S	E030S
20	E020S	E016S	E	E	013	E014S	E024S	E023S	E024S	028	E030S	034	E028S	E030S
21	E019S	E016S	014	E	E	E016S	E023S	E026S	E025S	E029S	E030S	E031S	E033S	E031S
22	E020S	E015S	E	E013S	E	B	E024S	E024S	E025S	E029S	E029S	E030S	E030S	E030S
23	E020S	E015S	E	E	E	E017S	E024S	E024S	E025S	E026S	E030S	E033S	037	E034S
24	E022S	E017S	E	E	E	E015S	E023S	E025S	E027S	E028S	035	030	E030S	036
25	E021S	E016S	013	E	E	E017S	E023S	E024S	E024S	028	033	E030S	E028S	E032S
26	E018S	B	E	B	B	B	E020S	E020S	E024S	E023S	030	E030S	E030S	E029S
27	E020S	014	014	E	E	E014S	E020S	E022S	E025S	E025S	030	E030S	030	030
28	E017S	E014S	015	014	012	E016S	E024S	E024S	E028S	033	036	E029S	E030S	E024S
29	023	016	013	013	E	E014S	E020S	E020S	E024S	027	030	E024S	E030S	E029S
30	E019S	E017S	012	E	E	E016S	E020S	E023S	E023S	C	C	C	E033S	E032S
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median Count	020 30	016 29	014 19	014 17	013 13	017 27	023 30	024 30	025 29	028 28	030 28	030 28	030 30	030 30
UQ	021	016	015	015	013	018	024	025	028	030	030	030	030	030
LQ	020	014	013	012	012	016	022	023	024	026	029	029	028	030
QR	1	2	2	3	1	2	2	2	4	4	1	1	2	0

\* Tabulation of 022 = 2.2 Mc.

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
E01 JS	030	E030S	E030S	E030S	036	E025S	E023S	E024S	E026S	027	035	030	030	E024S
E023S	E029S	E024S	E025S	E028S	E028S	E024S	E024S	E023S	E023S	E022S	E025S	E023S	E023S	E022S
027	E028S	E030S	E030S	E030S	037	C	E025S	E025S	E022S	E025S	E025S	E023S	E030S	E024S
E027S	034	E030S	E035S	E030S	035	C	E030S	E027S	E023S	E022S	E024S	E024S	E024S	E019S
E030S	032	E030S	E030S	E030S	E030S	E028S	E026S	E025S	E023S	E024S	E023S	E022S	E023S	E022S
E029S	E030S	E030S	E030S	E030S	E030S	E030S	036	E030S	E023S	E022S	E024S	E024S	E028S	E023S
E030S	E030S	E028S	E030S	E030S	E028S	031	023	025	E022S	E023S	E020S	E025S	E022S	E022S
E024S	E026S	E030S	E028S	E028S	E025S	E028S	E029S	E023S	E019S	E022S	E020S	E022S	E022S	E022S
E027S	E024S	E020S	E026S	E030S	E030S	E029S	E025S	E024S	E022S	E020S	E019S	E021S	E019S	E020S
E030S	030	E030S	E030S	E034S	E035S	E030S	E025S	E027S	E026S	E021S	E020S	E021S	E024S	E020S
E028S	E025S	E025S	E028S	E030S	E035S	E028S	E023S	E023S	022	023	020	022	E022S	E020S
034	E030S	E029S	E030S	E030S	E030S	E027S	E023S	E023S	E022S	E021S	E022S	024	E022S	E022S
030	E030S	E034S	E030S	E030S	E026S	E026S	E023S	E021S	E022S	E023S	E021S	E022S	E022S	E022S
030	E030S	E030S	E030S	E030S	E030S	E024S	E024S	E023S	E024S	E021S	E023S	E024S	026	E022S
E026S	E030S	E030S	E032S	E030S	E028S	E030S	E029S	E028S	E022S	E023S	E024S	E023S	E023S	E020S
E026S	E030S	E030S	E027S	E030S	E026S	E024S	E025S	E024S	E023S	E022S	E024S	E024S	E024S	E024S
C	C	C	034	030	030	030	E030S	E027S	E023S	E023S	E022S	E023S	E023S	E023S
E026S	E026S	E026S	025	E028S	E026S	E025S	E023S	E024S	E023S	E023S	E023S	E024S	E024S	E022S
034	E028S	E030S	E027S	E030S	E027S	E023S	E023S	E026S	E025S	E023S	028	E023S	E023S	E020S
028	E030S	034	E028S	E030S	E028S	E025S	E025S	030	E025S	023	E025S	E024S	E023S	E022S
E029S	E030S	E031S	E033S	E031S	027	E026S	E025S	E035S	E024S	025	E025S	E023S	E023S	E022S
E029S	E029S	E030S	E030S	E030S	C	C	032	E025S	E023S	E024S	E025S	E022S	E022S	E022S
E026S	E030S	E033S	037	E034S	032	E030S	E025S	E023S	E024S	E023S	E022S	E022S	E024S	E023S
E028S	035	030	E030S	036	E030S	E030S	E025S	C	C	C	C	C	C	E022S
028	033	E030S	E028S	E032S	C	E030S	025	E020S	E020S	E020S	E023S	E021S	E019S	E020S
E023S	030	E030S	E030S	E029S	E028S	E025S	E023S	E024S	E020S	E020S	E019S	E020S	E020S	E020S
E025S	030	E030S	030	030	029	E026S	E023S	E026S	E024S	023	E020S	E020S	E020S	022
033	036	E029S	E030S	E024S	E024S	024	030	E020S	E024S	024	E020S	E020S	E020S	E020S
027	030	E024S	E030S	E029S	E027S	E027S	030	E025S	E028S	E023S	E021S	E020S	E020S	E020S
C	C	C	E033S	E032S	037	E027S	E025S	E027S	E020S	E020S	E030S	E020S	E020S	E020S
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
028	030	030	030	030	030	027	025	025	023	023	023	023	023	022
28	28	28	30	30	28	27	30	29	29	29	29	29	29	30
030	030	030	030	030	031	030	029	027	024	023	025	024	024	022
026	029	029	028	030	027	025	023	023	022	022	020	021	021	020
4	1	1	2	0	4	5	6	4	2	1	5	3	3	2

B

Characteristic: foF2

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	025*	020	023	019	U018F	B	037	061	062	060	053	054	055	060
2	028	U023F	F	B	A	A	034	051	062	066	056	055	055	061
3	042	036	029	025	024	022	040	057	061	056	056	056	057	058
4	F	034	021	F	F	A	043	059	065	069	069H	066H	066H	066
5	026	U025S	F	F	F	A	037	057	073	077H	066	065	U057S	J060S
6	F	F	F	U018S	F	F	039	057	067	073	065	055	065H	075
7	F	F	F	U025F	F	A	038	A	066	068	063	057	U060S	061
8	025	U021H	A	U024F	U019F	A	043	064	076	080	077	064V	061V	063
9	053	051	U047F	U031F	U035F	U032F	041	057	068	073	070	075	075	075
10	U039F	U034F	F	035F	A	A	040	061	072	073	077	076	071	068
11	064	049	F	034	031	030	046	062	063	068	070	J070S	078	081
12	035	033	S	F	F	R	041	067	076	072	064	058	066	071
13	A	027	025	026	F	A	037	055	069	072	065	A	A	064
14	036	040	041	037	A	A	040	062	072	070	067H	A	066	U067S
15	028	025	A	U018R	016	A	040	065	074	072	057	060	060	067
16	F	F	F	F	F	F	046	062	074	076	075	070	066	070
17	055	S	S	S	S	F	F	058	C	C	C	C	110	098
18	049	040	F	A	A	A	040	065	A	J090R	082	078H	060	065
19	027	F	F	F	F	A	038	064	068	071	064	060	060	066
20	U034F	F	F	F	F	A	036	061	062	053	056	A	053	056
21	032	033	031	F	F	U024F	U040F	062	069	065	074	065	067	067
22	042	031	025	021	F	B	037	059	080	070	070H	064H	067H	065H
23	F	F	F	A	A	A	039	054	070	070	073	070	066	070H
24	F	F	F	F	F	A	033	056	063	072	070	063	072	066
25	F	A	A	A	A	A	038	054	070	070	064H	057	063	067
26	019	B	F	B	B	B	033	055	067	070	073	077	072	078
27	F	U030F	F	A	A	A	040	068	069	070	076	074	A	068
28	F	042	030	021	020	020	037	056	072	080	073	072	068	065
29	F	U033F	023	019	021	018	033	050	068	066	R	052	055	067
30	U026R	F	A	A	A	A	036	061	083	C	C	C	066	068
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	034	033	027	025	021	023	039	059	069	070	069	064	066	067
Count	19	19	10	14	8	6	29	29	28	28	27	25	28	30
UQ	042	040	031	031	028	030	040	062	072	073	074	071	067	070
LQ	026	025	023	019	019	020	037	056	066	068	064	057	060	064
QR	16	15	8	12	9	10	3	6	6	5	10	14	7	6

\* Tabulation of 025 = 2.5 Mc.

A

# IONOSPHERIC DATA

pp: 1 Mc to 25 Mc in 0.5 minute

June 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
060	053	054	055	060	070	073	071	070	072	083	070	047	042	034
066	056	055	055	061	068	072	077	082	081	095	070	057	047	044
056	056	056	057	058	070	C	077	082	082	093	064	053	045	036
069	069H	066H	066H	066	067	067	069H	076	089	105	058	035	032	029
077H	066	065	U057S	J060S	067	080	093	099	085	077	058	050	038	031
073	065	055	065H	075	085	075	075	078	085	099	076	043	035	033
068	063	057	U060S	061	067	068	070	084	088	091	081	051	035	032
080	077	064V	061V	063	068	077	081	080	077	080	076	072	060	052
073	070	075	074	075	082	076	079H	089	093	095	086	067	049	041
073	077	076	071	068	068	075	078	083	078	080	075	072	071	070
068	070	J070S	078	081	085	081	086	094	095	090	073	061	055	039
072	064	058	066	071	072	A	072	U073S	077	081	085	067	046	030
072	065	A	A	064	057	067	071	072	078	083	078	075	054	042
070	067H	A	066	U067S	071	082	080	081	087	093	078	066	038	028
072	057	060	060	067	073	075	080	085	089	090	077	065	F	F
076	075	070	066	070	075	080	085	088	097	087	075	F	F	F
C	C	C	110	098	096	106	110	108	101	091	078	064	053	056
J090R	082	078H	060	065	072	081	080	081	090	105	074	046	037	034
071	064	060	060	066	072	071	087	097	092	074	064	056	050	U038F
053	056	A	053	056	057	064	068	070	072	079	092	062	037	034
065	074	065	067	067	070	080	082	082	079	085	072	062	041	038
070	070H	064H	067H	065H	C	061	083	079	074	078	072	065	054	035
070	073	070	066	070H	068H	074	080	085	093	083	076	U063F	060	042
072	070	063	072	066	069	073H	075	C	C	-	-	-	-	037
070	064H	057	063	067	072	077	080	077	090	106	066	040	029	026
070	075	077	072	078	080	082	091	090	082	085	090	073	047	036
070	076	074	A	068	072	076	080	082	094	095	071	062	052	038
080	073	072	068	065	062	062	075	082	078	080	077	073	060	F
066	R	052	055	067	072	073	074	080	076	085	072	069	046	A
C	C	C	066	068	072	077	077	081	082	090	086	069	050	046
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
070	069	064	066	067	071	075	080	082	085	087	075	062	047	036
28	27	25	28	30	29	28	30	29	29	29	29	28	27	26
073	074	071	067	070	072	080	082	087	091	094	078	068	054	042
068	064	057	060	064	068	072	074	079	078	080	070	052	038	033
5	10	14	7	6	4	8	8	8	13	14	9	16	16	9

B



Characteristic: M(3000)F2

IONOSPHERIC DATA  
Sweep: 1 Mc to 25 Mc in 0.5 minute  
June 1965

Observed at:  
Bangkok, Thailand  
Lat. 13.73° N, Long. 100.57° E  
105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	380*	300	360	350	U345F	B	340	325	285	250	280	265	255*	250
2	325	U300F	F	B	A	A	335	300	290	270	260	265	250	240
3	310	315	290	295	320	335	340	325	275	265	255	250	260	265
4	F	360	275	F	F	A	350	335	300	270	240H	225H	275H	285
5	315	U310S	F	F	F	A	350	315	300	265H	230	250	U260S	S
6	F	F	F	U340S	F	F	340	330	275	250	255	240	215H	250
7	F	F	F	U330F	F	A	350	A	260	240	235	260	S	245
8	245	H	A	U255F	U310F	A	345	335	335	270	215	205V	200V	235
9	315	295	U330F	U325F	U355F	U310F	310	295	325	295	230	215	220	250
10	U250F	U320F	F	310F	A	A	315	285	250	250	230	225	235	235
11	300	280	F	290	325	350	345	305	280	240	235	S	240	255
12	340	330	S	F	F	R	330	320	275	245	245	255	240	235
13	A	320	315	330	F	A	325	290	270	260	245	A	A	235
14	285	320	325	305	A	A	305	330	315	260	215H	A	235	U250S
15	300	330	A	U300R	335	A	330	325	290	250	270	265	270	255
16	F	F	F	F	F	F	350	295	265	265	235	240	255	255
17	300	S	S	S	S	F	F	290	C	C	C	C	275	270
18	325	310	F	A	A	A	330	320	A	R	240	215H	250	250
19	270	F	F	F	F	A	330	330	290	250	250	235	255	255
20	U300F	F	F	F	F	A	330	310	250	270	260	A	250	255
21	280	320	310	F	F	U350F	U340F	325	305	260	240	265	225	215
22	325	340	330	310	F	B	325	310	320	285	250H	240H	210H	24CH
23	F	F	F	A	A	A	325	290	260	250	230	250	250	220H
24	F	F	F	F	F	A	315	290	270	230	255	290	240	255
25	F	A	A	A	A	A	330	290	285	255	220H	255	250	260
26	285	B	F	B	B	B	315	300	290	260	250	230	250	250
27	F	U310F	F	A	A	A	320	330	280	255	235	230	A	240
28	F	315	315	330	325	340	310	300	290	280	240	200	215	245
29	F	U320F	310	340	350	380	330	300	290	250	R	245	255	240
30	U240R	F	A	A	A	A	330	320	310	C	C	C	265	250
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	300	318	315	317	330	345	330	310	288	260	240	242	250	250
Count	19	18	10	14	8	6	29	29	28	27	27	24	27	29
UQ	325	320	330	330	347	350	340	325	300	270	255	257	255	255
LQ	280	310	310	300	323	335	323	295	273	250	230	228	235	240
QR	45	10	20	30	24	15	17	30	27	20	25	29	20	15

\* Tabulation of 380 = factor of 3.8.

A

# IONOSPHERIC DATA

ep: 1 Mc to 25 Mc in 0.5 minute

June 1965

09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
250	280	265	255*	250	285	280	275	275	285	325	345	360	330	330
270	260	265	250	240	245	250	270	290	280	325	320	330	290	290
265	255	250	260	265	270	C	285	310	295	335	310	320	320	300
270	240H	225H	275H	285	300	250	250H	260	290	350	350	310	290	310
265H	230	250	U260S	S	280	275	300	320	330	330	340	330	320	280
250	255	240	215H	250	270	270	270	270	290	330	360	330	305	310
240	235	260	S	245	240	260	220	260	310	330	345	325	320	305
270	215	205V	200V	235	235	245	260	260	275	385	295	300	305	285
295	230	215	220	250	265	245	255H	300	305	315	325	315	285	385
250	230	225	235	235	245	260	265	280	285	285	280	300	310	315
240	235	S	240	255	260	250	255	265	280	315	320	300	345	320
245	245	255	240	235	235	A	255	U250S	265	280	315	330	335	300
260	245	A	A	235	235	250	255	265	280	310	315	330	330	290
260	215H	A	235	U250S	245	270	280	295	300	320	360	360	330	300
250	270	265	270	255	245	245	250	275	290	330	310	310	F	F
265	235	240	255	255	250	245	245	260	300	290	265	F	F	F
C	C	C	275	270	265	280	290	300	310	305	290	300	295	315
R	240	215H	250	250	260	260	270	270	285	350	340	330	290	300
250	250	235	255	255	250	260	295	320	340	330	305	330	320	U310F
270	260	A	250	255	250	250	250	270	275	295	340	340	310	305
260	240	265	225	215	250	265	285	280	300	325	330	355	320	295
285	250H	240H	210H	240H	C	280	270	275	270	295	300	310	310	310
250	230	250	250	220H	230H	255	265	275	310	310	320	U305F	325	300
230	255	290	240	255	240	240H	255	C	C	-	-	-	-	260
255	220H	255	250	260	270	270	280	285	300	340	350	325	310	305
260	250	230	250	250	250	250	265	290	280	290	315	330	330	310
255	235	230	A	240	260	260	255	270	305	330	320	330	350	300
280	240	200	215	245	280	235	250	275	285	300	320	330	330	F
250	R	245	255	240	250	260	265	285	300	330	325	340	350	A
C	C	C	265	250	250	245	245	270	275	300	320	325	325	305
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
260	240	242	250	250	250	253	265	275	290	325	320	330	320	305
27	27	24	27	29	29	28	30	29	29	29	29	28	27	26
270	255	257	255	255	267	268	275	290	302	330	340	330	330	310
250	230	228	235	240	245	248	255	268	280	300	310	310	305	300
20	25	29	20	15	22	20	20	22	22	30	30	20	25	10

B

Characteristic: h'F<sub>2</sub>

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	
1	-	-	-	-	-	-	-	L	L	440*	420	470	480	460	
2	-	-	-	-	-	-	-	L	340	340	420	E490A	490	460H	
3	-	-	-	-	-	-	-	290	L	430	450	440	440	410	
4	-	-	-	-	-	-	-	270	U310L	U370L	400H	450H	420	370	
5	-	-	-	-	-	-	-	L	300	350	430	420	450	450	
6	-	-	-	-	-	-	-	L	U330L	350	400	510	500H	390	
7	-	-	-	-	-	-	-	A	U360L	E500A	E430A	470	470	440	
8	-	-	-	-	-	-	-	255	305	335	275	460	500	470	
9	-	-	-	-	-	-	-	L	290	330	410	445	450	E420A	
10	-	-	-	-	-	-	-	L	L	340	410	410	400	430	
11	-	-	-	-	-	-	-	L	L	U370L	400	450	390	400	
12	-	-	-	-	-	-	-	U290L	310	420	350	450	430	420	
13	-	-	-	-	-	-	-	L	U340L	340	400	A	A	450	
14	-	-	-	-	-	-	-	273	300	L	430H	A	E450A	380	
15	-	-	-	-	-	-	-	U270L	L	360	430	440	410	400	
16	-	-	-	-	-	-	-	L	L	340	L	420	415	380	
17	-	-	-	-	-	-	-	L	-	-	-	-	340	350	
18	-	-	-	-	-	-	-	-	A	U380L	L	400	420	420	
19	-	-	-	-	-	-	-	U280L	L	335	410	L	450	400	
20	-	-	-	-	-	-	-	L	L	L	450	A	500	470	
21	-	-	-	-	-	-	-	300	310	430	380	400	430	450	
22	-	-	-	-	-	-	-	L	280	L	420H	440H	530H	440H	
23	-	-	-	-	-	-	-	L	U350L	340	400	390	400	480H	
24	-	-	-	-	-	-	-	L	L	U390L	400	360	460	370	
25	-	-	-	-	-	-	-	L	U320L	335	500H	450	420	390	
26	-	-	-	-	-	-	-	L	L	330	400	420	380	390	
27	-	-	-	-	-	-	-	U270L	340	U370L	350	400	A	420	
28	-	-	-	-	-	-	-	L	U310L	320	360	440	440	470	
29	-	-	-	-	-	-	-	L	300	L	L	520	470	450	
30	-	-	-	-	-	-	-	U330L	310	C	C	C	380	380	
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Median	-	-	-	-	-	-	-	276	310	350	410	440	440	420	
Count	-	-	-	-	-	-	-	10	18	24	25	24	28	30	
UQ	-	-	-	-	-	-	-	290	340	385	430	455	470	450	
LQ	-	-	-	-	-	-	-	270	300	338	400	415	413	390	
QR	-	-	-	-	-	-	-	20	40	47	30	40	57	60	

\* Tabulation of 440 = 440 km.

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
L	440*	420	470	480	460	360	320	340	L	L	-	-	-	-	-
340	340	420	E490A	490	460H	400	350	U350L	330	L	-	-	-	-	-
L	430	450	44C	440	410	370	C	460	305	L	-	-	-	-	-
U310L	U370L	400H	450H	420	370	360	415	L	350	U300L	-	-	-	-	-
300	350	430	420	450	450	390	370	330	290	-	-	-	-	-	-
U330L	350	400	510	500H	390	360	370	400	410	L	-	-	-	-	-
U360L	E500A	E430A	470	470	440	420	400	395	335	L	-	-	-	-	-
305	335	275	460	500	470	415	370	350	225	L	-	-	-	-	-
290	330	410	445	450	E420A	370	480	390	315	-	-	-	-	-	-
L	340	410	410	400	430	400	350	L	L	-	-	-	-	-	-
L	U370L	400	450	390	400	410	E400A	E430A	400	-	-	-	-	-	-
310	420	350	450	430	420	400	A	340	490	E340A	-	-	-	-	-
U340L	340	400	A	A	450	430	380	L	L	L	-	-	-	-	-
300	L	430H	A	E450A	380	410	370	L	L	L	-	-	-	-	-
L	360	430	440	410	400	390	L	340	L	L	-	-	-	-	-
L	340	L	420	415	380	390	L	L	U280L	-	-	-	-	-	-
-	-	-	-	340	350	350	330	315	325	-	-	-	-	-	-
A	U380L	L	400	420	420	360	370	340	L	-	-	-	-	-	-
L	335	410	L	450	400	380	350	340	300	-	-	-	-	-	-
L	L	450	A	500	470	460	410	350	L	L	-	-	-	-	-
310	430	380	400	430	450	400	350	U320L	U320L	-	-	-	-	-	-
280	L	420H	440H	530H	440H	C	400	340	L	L	-	-	-	-	-
U350L	340	400	390	400	480H	430H	380	360	E350A	-	-	-	-	-	-
L	U390L	400	360	460	370	500	400H	380	C	C	-	-	-	-	-
U320L	335	500H	450	420	390	380	380	360	U330L	L	-	-	-	-	-
L	330	400	420	380	390	380	400	330	330	-	-	-	-	-	-
340	U370L	350	400	A	420	400	350	U340L	L	-	-	-	-	-	-
U310L	320	360	440	440	470	380	430	390	340	-	-	-	-	-	-
300	L	L	520	470	450	430	340	390	300	-	-	-	-	-	-
310	C	C	C	380	380	430	390	370	U330L	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
310	350	410	440	440	420	400	375	350	330	-	-	-	-	-	-
18	24	25	24	28	30	29	26	25	20	2	-	-	-	-	-
340	385	430	455	470	450	417	400	390	345	-	-	-	-	-	-
300	338	400	415	413	390	375	350	340	303	-	-	-	-	-	-
40	47	30	40	57	60	42	50	50	42	-	-	-	-	-	-

8

Characteristic: h'F

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	E400B	E350S	260*	260	270	B	E260S	215	11'0H	200	A	A	230	200
2	300	310	300	B	A	A	E280S	230	20'0	230	A	A	E230A	A
3	295	280	310	310	280	260	E260A	E240A	200	200	E240A	E200A	E200A	200
4	280	240	300	320	300	A	250	E240A	230	220	E250A	210	A	200
5	U320S	280	250	270	U250S	A	265	E250A	210	200H	E240A	A	A	A
6	310	280	250	280	330	U250S	240	E25	220	210	200	U200S	200	200
7	280	230	260	280	230	A	E290A	A	E210A	A	A	A	A	A
8	E395S	E355S	A	355	320	A	E250S	L	A	290	185	210	180	A
9	285	275	265	330	230	270	250	235	A	210	A	A	190	A
10	U380H	295F	255	310	A	A	E295A	E255A	E240A	210	200	200	200	200
11	270	300	310	300	250	240	260	E200S	200	180	205	210	200	190
12	280	270	280	320	300	260	260	E230A	E210A	200	180	E190A	E190A	210
13	A	300	300	270	335	A	260	E230A	E210A	190	200	A	A	A
14	330	290	230	215	A	A	245	E205A	E210A	200	210	A	A	A
15	310	300	A	300	260	A	260	E240A	220	220	A	190	170	170
16	U480S	U450S	U450S	400	330	270	250	235	215	E350A	E200A	E230A	210	E220
17	250	300	300	230	200	320	300	250	C	C	C	C	240	E230
18	250	265	E300A	A	A	A	260	E285A	A	E360A	E350A	E210A	170	E180
19	390	400	370	300	300	A	E300A	240	200	200	E200A	E230A	A	E210
20	300	300	310	330	365	A	260	E230A	200	200	200	A	A	200
21	340	280	300	260	240	230	250	230	200	200	E235A	200	E300A	220
22	260	220	240	300	310	B	260	230	210	200	200	190	200	180
23	340	300	310	A	A	A	260	245	220	200	A	A	190	E240
24	320	300	300	280	300	A	280	E250A	220	205	200	190	210	160
25	340	A	A	A	A	A	270	230	210	190	190	180	175	170
26	E400S	B	390	B	B	B	270	E270A	200	190H	200	190	E240A	200
27	315	370	370	A	A	A	250	215	220	180H	A	A	A	A
28	340	280	270	290	300	270	270	330	E230A	210	200	200	190	A
29	370	270	250	260	230	240	260	220	200	200	E210A	200	190	210
30	E450A	400	A	A	A	A	280	240	200	C	C	C	E220A	200
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	320	298	300	300	280	260	260	233	210	200	200	200	200	200
Count	29	21	26	23	21	10	30	28	26	27	21	18	22	21
UQ	365	305	310	320	305	270	270	242	220	210	222	210	210	210
LQ	283	278	260	270	238	240	250	230	200	200	200	190	190	185
QR	82	27	50	50	67	30	20	12	20	10	22	20	20	25

\* Tabulation of 260 = 260 km.

A

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
180H	200	A	A	230	200	190	E200A	220	E210A	E260A	240	240	250	270	300
200	230	A	A	E230A	A	200	E260A	220	E240A	E280A	260	240	250	280	300
200	200	E240A	E200A	E200A	200	190H	C	200	E230A	250	240	238	280	U300S	300
230	220	E250A	210	A	200	E210A	230	220	210	250	230	200	300	330	U360S
210	200H	E240A	A	A	A	A	A	A	E240A	260	270	230	240	285	E350S
220	210	200	U200S	200	200	200	E200A	240	230	E270A	240	210	220	300	300
E210A	A	A	A	A	A	200	200	L	220	E250S	245	210	215	E260S	E300S
A	290	185	210	180	A	200	220	A	A	E250S	270	275	280	260	290
A	210	A	A	190	A	260	320	210	255	250	235	245	270	E300A	E345A
E240A	210	200	200	200	200	200	200	200	E220A	E240S	260	285	280	260	260
200	180	205	210	200	190	220	A	A	A	E340A	260	260	270	240	270
E210A	200	180	E190A	E190A	210	200	A	A	A	A	270	240	250	230	300
E210A	190	200	A	A	A	A	A	E210A	E200A	E240A	240	240	240	250	300
E210A	200	210	A	A	A	A	A	E220A	E230A	E320A	E220A	240	230	210	E300S
220	220	A	190	170	170	170	E240A	E290A	E240A	240	250	250	250	330	430
215	E250A	E200A	E230A	210	E220A	E230A	E230A	E240A	240	260	270	340	400	U350S	U270S
C	C	C	C	240	E230A	E240A	E240A	230	A	300	265	300	290	280	260
A	E360A	E350A	E210A	170	E180A	210	195	A	220	240	230	230	250	300	320
200	200	E200A	E230A	A	E210A	E230A	A	E270A	A	250	240	278	250	270	300
200	200	200	A	A	200	230	A	E260A	E210S	230	250	230	210	270	300
200	200	E235A	200	E200A	220	170	200	200	E240A	290	240	240	220	260	300
210	200	200	190	200	180	C	180H	200	200	240	270	260	280	260	300
220	200	A	A	190	E240A	210	E230A	220	A	E300A	280	260	260	260	300
220	205	200	190	210	160	200	200	205	C	C	C	C	C	C	E350A
210	190	190	180	175	170	E180A	200	200	230	310	250	210	260	300	340
200	190H	200	190	E240A	200	180H	215	A	A	260	300	270	240	230	305
220	180H	A	A	A	A	A	200	210	230	290	230	230	260	230	300
E220A	210	200	200	190	A	240	E240A	200	220	230	260	240	240	230	300
200	200	E210A	200	190	210	200	E230A	210	A	260	250	250	240	225	A
200	C	C	C	E220A	200	E200B	210	E210A	230	270	270	265	260	270	290
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
210	200	200	200	200	200	200	215	210	230	255	250	242	250	270	300
26	27	21	18	22	21	25	23	23	21	28	29	29	29	29	29
220	210	222	210	210	210	225	230	230	240	275	270	262	275	300	312
200	200	200	190	190	185	195	200	200	215	240	240	230	240	255	300
20	10	22	20	20	25	30	30	30	25	35	30	32	35	45	12

Characteristic: foF1

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	-	-	-	-	-	-	-	L	L	043*	A	A	044	044
2	-	-	-	-	-	-	-	L	040	041	A	A	044	A
3	-	-	-	-	-	-	-	L	040	043	U044R	044	044	044
4	-	-	-	-	-	-	-	L	L	U043L	044	044	A	044
5	-	-	-	-	-	-	-	L	L	U044L	044	A	A	A
6	-	-	-	-	-	-	-	L	040	043	044	041	045	045
7	-	-	-	-	-	-	-	A	U043L	A	A	A	A	A
8	-	-	-	-	-	-	-	L	U044L	044	047	045	045	046
9	-	-	-	-	-	-	-	L	L	045	045	046	046	A
10	-	-	-	-	-	-	-	L	L	044	046	045	045	045
11	-	-	-	-	-	-	-	L	L	U044L	045	045	045	045
12	-	-	-	-	-	-	-	L	L	047	044	045	045	045
13	-	-	-	-	-	-	-	L	L	043	044	A	A	A
14	-	-	-	-	-	-	-	L	U043L	U044L	044	A	A	A
15	-	-	-	-	-	-	-	L	L	043	A	045	045	044
16	-	-	-	-	-	-	-	L	L	U044L	045	045	045	045
17	-	-	-	-	-	-	-	L	C	C	C	C	L	046
18	-	-	-	-	-	-	-	-	A	L	L	046	046	044
19	-	-	-	-	-	-	-	L	L	043	044	042	A	044
20	-	-	-	-	-	-	-	L	040	043	044	A	A	045
21	-	-	-	-	-	-	-	L	L	045	044	045	045	044
22	-	-	-	-	-	-	-	L	L	U044L	044	045	045	044
23	-	-	-	-	-	-	-	L	U042L	043	A	A	046	047
24	-	-	-	-	-	-	-	L	L	U045L	045	045	045	045
25	-	-	-	-	-	-	-	L	U042L	043	045	045	045	045
26	-	-	-	-	-	-	-	L	L	043H	044	044	044	044
27	-	-	-	-	-	-	-	L	U046L	U043L	A	A	A	A
28	-	-	-	-	-	-	-	L	L	042	044	045	045	A
29	-	-	-	-	-	-	-	L	U040L	042	044	044	045	045
30	-	-	-	-	-	-	-	L	U040L	C	C	C	044	044
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	041	043	044	045	045	045
Count	-	-	-	-	-	-	-	-	12	26	21	19	21	22
UQ	-	-	-	-	-	-	-	-	043	044	045	045	045	045
LQ	-	-	-	-	-	-	-	-	040	043	044	044	044	044
QR	-	-	-	-	-	-	-	-	3	1	1	1	1	1

\* Tabulation of 043 = 4.3 Mc.

A

IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
L	043*	A	A	044	044	043	041	041	L	L	-	-	-	-	-
040	041	A	A	044	A	042	042	042	L	L	-	-	-	-	-
040	043	U044R	044	044	044	044H	C	U044L	L	L	-	-	-	-	-
L	U043L	044	044	A	044	044	045	L	L	L	-	-	-	-	-
L	U044L	044	A	A	A	A	A	A	L	-	-	-	-	-	-
040	043	044	041	045	045	044	044	044	L	L	-	-	-	-	-
U043L	A	A	A	A	A	045	043	L	042	L	-	-	-	-	-
U044L	044	047	045	045	046	044	043	A	L	L	-	-	-	-	-
L	045	045	046	046	A	047	060	044	L	L	-	-	-	-	-
L	046	045	045	045	045	045	045	L	L	-	-	-	-	-	-
L	U044L	045	045	045	045	045	A	A	A	-	-	-	-	-	-
L	047	044	045	045	045	044	A	A	A	A	-	-	-	-	-
L	043	044	A	A	A	A	A	L	L	L	-	-	-	-	-
U043L	U044L	044	A	A	A	A	044	L	L	L	-	-	-	-	-
L	043	A	045	045	044	044	U044L	L	L	L	-	-	-	-	-
L	U044L	045	045	045	045	044	U043L	L	L	-	-	-	-	-	-
C	C	C	C	L	046	044	L	L	A	-	-	-	-	-	-
A	L	L	046	046	044	044	043	A	L	-	-	-	-	-	-
L	043	044	042	A	044	045	A	L	A	-	-	-	-	-	-
040	043	044	A	A	045	044	A	L	L	L	-	-	-	-	-
L	045	044	045	045	044	044	043	U041L	L	-	-	-	-	-	-
L	U044L	044	045	045	044	C	042H	040	L	L	-	-	-	-	-
U042L	043	A	A	046	047	044	044	U043L	A	-	-	-	-	-	-
L	U045L	045	045	045	045	045	044	042	C	C	-	-	-	-	-
U042L	043	045	045	045	045	045	044	042	U039L	L	-	-	-	-	-
L	043H	044	044	044	044	044H	044	A	A	-	-	-	-	-	-
U046L	U043L	A	A	A	A	A	043	L	L	-	-	-	-	-	-
L	042	044	045	045	A	045	043	041	U040L	-	-	-	-	-	-
U040L	042	044	044	045	045	044	043	043	A	-	-	-	-	-	-
U040L	C	C	C	044	044	045	043	044	L	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
041	043	044	045	045	045	044	043	042	040	-	-	-	-	-	-
12	26	21	19	21	22	24	22	13	3	-	-	-	-	-	-
043	044	045	045	045	045	045	044	044	041	-	-	-	-	-	-
040	043	044	044	044	044	044	043	041	039	-	-	-	-	-	-
3	1	1	1	1	1	1	1	3	2	-	-	-	-	-	-



Characteristic: M(3000)F1

IONOSPHERIC DATA  
Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	-	-	-	-	-	-	-	L	L	390*	A	A	400	420
2	-	-	-	-	-	-	-	L	380	400	A	A	380	A
3	-	-	-	-	-	-	-	L	380	385	U385R	425	430	425
4	-	-	-	-	-	-	-	L	L	U370L	390	400	A	430
5	-	-	-	-	-	-	-	L	L	U370L	400	A	A	A
6	-	-	-	-	-	-	-	L	385	385	400	385	420	420
7	-	-	-	-	-	-	-	A	U340L	A	A	A	A	A
8	-	-	-	-	-	-	-	L	U375L	375	395	400	425	-
9	-	-	-	-	-	-	-	L	L	385	375	395	430	A
10	-	-	-	-	-	-	-	L	L	370	390	400	420	410
11	-	-	-	-	-	-	-	L	L	U395L	390	400	400	410
12	-	-	-	-	-	-	-	L	L	360	420	410	400	400
13	-	-	-	-	-	-	-	L	L	380	380	A	A	A
14	-	-	-	-	-	-	-	L	U365L	U390L	410	A	A	A
15	-	-	-	-	-	-	-	L	L	390	A	425	435	420
16	-	-	-	-	-	-	-	L	L	U370L	390	400	400	410
17	-	-	-	-	-	-	-	L	C	C	C	C	L	370
18	-	-	-	-	-	-	-	-	A	L	L	370	410	400
19	-	-	-	-	-	-	-	L	L	375	400	380	A	400
20	-	-	-	-	-	-	-	L	385	390	400	A	A	400
21	-	-	-	-	-	-	-	L	L	375	390	420	420	415
22	-	-	-	-	-	-	-	L	L	U380L	400	410	420	420
23	-	-	-	-	-	-	-	L	U370L	390	A	A	410	385
24	-	-	-	-	-	-	-	L	L	U375L	380	410	400	410
25	-	-	-	-	-	-	-	L	U380L	400	420	440	430	415
26	-	-	-	-	-	-	-	L	L	385H	385	410	400	420
27	-	-	-	-	-	-	-	L	U340L	U390L	A	A	A	A
28	-	-	-	-	-	-	-	L	L	390	405	415	425	A
29	-	-	-	-	-	-	-	L	U390L	410	410	420	400	400
30	-	-	-	-	-	-	-	L	U380L	C	C	C	410	400
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	380	385	395	410	410	410
Count	-	-	-	-	-	-	-	-	12	26	21	19	21	21
UQ	-	-	-	-	-	-	-	-	382	390	402	420	425	420
LQ	-	-	-	-	-	-	-	-	367	375	388	400	400	400
QR	-	-	-	-	-	-	-	-	15	15	14	20	25	20

\* Tabulation of 390 = factor of 3.9.

A

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
L	390*	A	A	400	420	430	410	375	L	L	-	-	-	-	-
380	400	A	A	380	A	425	375	375	L	L	-	-	-	-	-
380	385	U385R	425	430	425	400H	C	U365L	L	L	-	-	-	-	-
L	U370L	390	400	A	430	395	400	L	L	L	-	-	-	-	-
L	U370L	400	A	A	A	A	A	A	L	-	-	-	-	-	-
385	385	400	385	420	420	420	395	360	L	L	-	-	-	-	-
U340L	A	A	A	A	A	400	400	L	345	L	-	-	-	-	-
U375L	375	395	400	425	-	385	385	A	L	L	-	-	-	-	-
L	385	375	395	430	A	365	200	365	L	-	-	-	-	-	-
L	370	390	400	420	410	420	400	L	L	-	-	-	-	-	-
L	U395L	390	400	400	410	380	A	A	A	-	-	-	-	-	-
L	360	420	410	400	400	400	A	A	A	A	-	-	-	-	-
L	380	380	A	A	A	A	A	L	L	L	-	-	-	-	-
U365L	U390L	410	A	A	A	A	380	L	L	L	-	-	-	-	-
L	390	A	425	435	420	410	U370L	L	L	L	-	-	-	-	-
L	U370L	390	400	400	410	400	U385L	L	L	-	-	-	-	-	-
C	C	C	C	L	370	L	L	L	A	-	-	-	-	-	-
A	L	L	370	410	400	400	400	A	L	-	-	-	-	-	-
L	375	400	380	A	400	380	A	L	A	-	-	-	-	-	-
385	390	400	A	A	400	375	A	L	L	L	-	-	-	-	-
L	375	390	420	420	415	405	395	U400L	L	-	-	-	-	-	-
L	U380L	400	410	420	430	C	400H	415	L	L	-	-	-	-	-
U370L	390	A	A	410	385	420	380	U365L	A	-	-	-	-	-	-
L	U375L	380	410	400	410	400	400	390	C	C	-	-	-	-	-
U380L	400	420	440	430	415	420	400	400	U370L	L	-	-	-	-	-
L	385H	385	410	400	420	390H	370	A	A	-	-	-	-	-	-
U340L	U390L	A	A	A	A	A	405	L	L	-	-	-	-	-	-
L	390	405	415	425	A	390	390	390	U360L	-	-	-	-	-	-
U390L	410	410	420	400	400	400	390	370	A	-	-	-	-	-	-
U380L	C	C	C	410	400	375	390	360	L	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
380	385	395	410	410	410	400	392	375	360	-	-	-	-	-	-
12	26	21	19	21	21	24	22	13	3	-	-	-	-	-	-
382	390	402	420	425	420	415	400	395	365	-	-	-	-	-	-
367	375	388	400	400	400	388	380	365	353	-	-	-	-	-	-
15	15	14	20	25	20	27	20	30	12	-	-	-	-	-	-

B

Characteristic: f<sub>o</sub>F

IONOSPHERIC DATA  
Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	-	-	-	-	-	-	-	B	A	A	A	A	A	A
2	-	-	-	-	-	-	-	S	A	A	A	A	A	A
3	-	-	-	-	-	-	-	B	A	A	A	A	A	A
4	-	-	-	-	-	-	-	A	B	B	B	A	B	A
5	-	-	-	-	-	-	-	S	S	S	B	A	A	A
6	-	-	-	-	-	-	-	280*	S	A	A	A	A	A
7	-	-	-	-	-	-	-	S	S	S	A	A	D350A	A
8	-	-	-	-	-	-	-	A	A	S	S	S	R	A
9	-	-	-	-	-	-	S	S	S	360	A	S	S	S
10	-	-	-	-	-	-	-	S	S	A	A	A	350	A
11	-	-	-	-	-	-	-	S	B	A	A	A	A	A
12	-	-	-	-	-	-	-	S	A	B	A	A	A	A
13	-	-	-	-	-	-	-	A	A	A	A	A	A	A
14	-	-	-	-	-	-	-	A	A	B	A	A	A	A
15	-	-	-	-	-	-	-	A	A	A	S	S	S	S
16	-	-	-	-	-	-	-	A	A	A	A	A	A	A
17	-	-	-	-	-	-	-	A	A	A	A	A	A	A
18	-	-	-	-	-	-	-	A	C	C	C	C	B	A
19	-	-	-	-	-	-	-	-	A	A	A	A	A	A
20	-	-	-	-	-	-	-	A	A	B	A	A	A	A
21	-	-	-	-	-	-	-	A	D280R	B	A	A	A	A
22	-	-	-	-	-	-	-	A	300	A	A	A	A	A
23	-	-	-	-	-	-	-	A	A	A	A	A	A	S
24	-	-	-	-	-	-	-	S	A	S	S	S	B	R
25	-	-	-	-	-	-	-	S	S	A	B	A	A	B
26	-	-	-	-	-	-	-	S	S	B	B	U360S	S	S
27	-	-	-	-	-	-	-	A	A	D300A	A	A	D360A	D340R
28	-	-	-	-	-	-	-	S	S	A	A	A	A	A
29	-	-	-	-	-	-	-	S	S	B	B	A	A	A
30	-	-	-	-	-	-	-	A	D250A	D300A	A	D300A	S	A
31	-	-	-	-	-	-	-	S	S	C	C	C	S	S
Median	-	-	-	-	-	-	-	280	280	300	-	330	350	340
Count	-	-	-	-	-	-	-	1	3	3	-	2	3	1
UQ	-	-	-	-	-	-	-	-	290	330	-	350	355	-
LQ	-	-	-	-	-	-	-	-	265	300	-	315	350	-
QR	-	-	-	-	-	-	-	-	25	30	-	35	5	-

\* Tabulation of 280 = 2.8 Mc.

A

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
A A A B S S S A S S S B A A A A A C A A A 280R 300 A A S S A S S 250A S -	A A A B S A S 360 A A B A A B A A C A B B A A A S A B D300A A B D300A C -	A A A B B A A S S A A A A S A C A A A A S B U360S A A A B A C -	A A A A A D350A R S S A A A S A A A C A A S A A U360S A A D300A C -	A A A B A D350A R S 350 A A A S A A A B A A S A A D360A A S S -	A A A A A A S A A A A A S R S B S D340R A A A S -	B A B B A D340A S 370 400 S A A A A B A A A B A A B C B R C D320R A A S B -	A A C B A B 380 390 S D340A A A A A A A A A A A C S A S D300A S A S U340R -	A A A B B A S U310S 300 D300A A A A A A S A A A A A A B A D270A B A D310A -	A A A B A A A A S A A A S A A C A A S A A S -	- - - - - - - - - - - - - - - -	- - - - - - - - - - - - - - -	- - - - - - - - - - - - - - -	- - - - - - - - - - - - - - -	- - - - - - - - - - - - - - -	
280 3	300 3	- -	330 2	350 3	340 1	340 5	340 5	300 5	- -	- -	- -	- -	- -	- -	- -
290 265 25	330 300 30	- - -	350 315 35	355 350 5	- - -	385 330 55	385 320 65	310 285 25	- - -	- - -	- - -	- - -	- - -	- - -	- - -

B

Characteristic: h'F

IONOSPHERIC DATA  
Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	-	-	-	-	-	-	-	B	A	A	A	A	A	A
2	-	-	-	-	-	-	-	S	A	A	A	A	A	A
3	-	-	-	-	-	-	-	B	A	A	A	A	A	A
4	-	-	-	-	-	-	-	A	B	B	B	A	B	A
5	-	-	-	-	-	-	-	S	S	S	B	A	A	A
6	-	-	-	-	-	-	-	150*	S	A	A	A	A	A
7	-	-	-	-	-	-	-	S	S	S	S	S	E110S	A
8	-	-	-	-	-	-	-	A	125	S	S	S	105	A
9	-	-	-	-	-	-	S	S	S	A	E130S	S	S	S
10	-	-	-	-	-	-	-	S	S	A	A	S	115	A
11	-	-	-	-	-	-	-	S	S	A	A	A	A	A
12	-	-	-	-	-	-	-	S	B	A	A	A	A	A
13	-	-	-	-	-	-	-	S	A	B	A	A	A	A
14	-	-	-	-	-	-	-	A	A	A	A	A	A	A
15	-	-	-	-	-	-	-	A	A	B	S	S	S	S
16	-	-	-	-	-	-	-	A	A	A	A	A	A	A
17	-	-	-	-	-	-	-	A	A	A	A	A	A	A
18	-	-	-	-	-	-	-	A	C	C	C	C	B	A
19	-	-	-	-	-	-	-	-	A	A	A	A	A	A
20	-	-	-	-	-	-	-	A	A	B	A	A	A	A
21	-	-	-	-	-	-	-	A	115	B	A	A	A	A
22	-	-	-	-	-	-	-	A	115	A	A	S	S	S
23	-	-	-	-	-	-	-	A	A	A	A	A	A	120
24	-	-	-	-	-	-	-	S	A	S	S	S	B	S
25	-	-	-	-	-	-	-	S	S	A	B	A	A	B
26	-	-	-	-	-	-	-	S	S	B	B	100	S	S
27	-	-	-	-	-	-	-	A	A	125	A	A	120	120
28	-	-	-	-	-	-	-	S	S	A	A	A	A	A
29	-	-	-	-	-	-	-	S	S	B	B	A	A	A
30	-	-	-	-	-	-	-	A	110	110	A	110	S	A
31	-	-	-	-	-	-	-	S	S	C	C	C	S	S
Median	-	-	-	-	-	-	-	-	115	-	-	-	112	120
Count	-	-	-	-	-	-	-	1	4	1	1	2	4	2
UQ	-	-	-	-	-	-	-	-	120	-	-	-	117	120
LQ	-	-	-	-	-	-	-	-	113	-	-	-	102	120
QR	-	-	-	-	-	-	-	-	7	-	-	-	15	0

\* Tabulation of 150 = 150 km.

Sweep: 1 Mc to 25 Mc in 0.5 minute

**June 1965**

15

Q

Characteristic: fbEs

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	B	S	014*	-	B	B	S	B	-	034	042	048	040M	040
2	S	S	B	B	A	A	S	029	031M	037	050	050M	042M	046M
3	S	B	B	B	-	S	026	-	028	036	040M	038	038	039
4	-	016	-	-	D012R	A	S	030M	034	036	040M	038M	050M	040M
5	-	-	S	S	014	A	S	032M	030	035M	M	050M	050M	050M
6	S	S	-	-	E	S	S	G	032	034	034	040	040	040M
7	-	-	015M	014	018	A	032M	A	034M	060M	050M	048M	049M	050M
8	S	-	-	015M	M	M	S	026M	033	034	036M	039	040M	046M
9	S	S	019M	B	B	S	S	M	037M	035M	041M	042M	034M	055M
10	029M	-	-	M	073M	052M	032	032M	036	035M	036	038M	040M	039M
11	S	S	S	013	013	S	S	S	B	D032R	035M	041M	040	038
12	S	S	S	-	015	S	S	027	033M	B	034M	039M	040M	040M
13	A	019	B	-	-	A	-	026	031	035	041M	A	A	045M
14	S	S	B	B	A	A	S	029M	033M	035	041M	A	050M	046M
15	S	B	A	-	B	A	030	033	032	040M	045M	040M	040M	037M
16	-	S	S	-	-	S	S	026	030	039	039M	040	040M	040M
17	S	-	014	-	014	-	030	028	C	C	-	C	040	040
18	S	020	017	A	A	A	028	040	A	058M	050M	040M	045M	037M
19	S	S	B	B	015	A	029M	035M	032	B	033	041M	050M	040M
20	S	S	019	019M	-	A	026	032	030	D032R	038	A	048M	040M
21	S	S	S	E	E	-	-	-	G	035	040	040	040	D035R
22	S	-	-	-	011	B	-	030	031	034	035M	036	040	G
23	S	017	015	A	A	A	-	031	033	036	046	047	040	041
24	S	-	-	018M	016M	A	-	029	034	034	B	037M	038M	B
25	023	A	A	A	A	A	025M	030	031	036	036	G	037	037
26	021	B	E	B	B	B	022	035M	030	033	036	035M	042	G
27	026M	D022R	024	A	A	A	S	027	030	034	046	046	A	050M
28	023	018	023	B	013	-	S	028	032M	037	B	037	039	055M
29	028	-	B	B	E	-	S	025	030	037M	040M	040	038	037
30	-	S	A	A	A	A	026M	028	030	C	C	C	042M	D035R
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	025	019	017	015	014	-	028	029	032	035	040	040	040	040
Count	6	6	9	5	11	1	11	23	25	26	25	24	28	27
UQ	028	020	021	018	016	-	030	032	033	037	044	044	044	046
LQ	023	017	015	014	013	-	026	027	030	034	036	038	040	038
QR	5	3	6	4	3	-	4	5	3	3	8	6	4	8

\* Tabulation of 014 = 1.4 Mc.

A

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
-	034	042	048	040M	040	B	035	033M	030M	M	B	B	B	B	S
031M	037	050	050M	042M	046M	036M	039	034	032	030	031	-	S	S	S
028	036	040M	038	038	039	B	C	033	032	025M	S	S	027	S	S
034	036	040M	038M	050M	040M	041	C	033M	030M	028M	055M	-	S	-	024
030	035M	M	050M	050M	050M	050M	060M	050M	032M	035	040	S	024	-	S
032	034	034	040	040	040M	036	037	B	M	027M	S	S	S	-	S
034M	060M	050M	048M	049M	050M	038	035	-	028	-	S	S	S	S	S
033	034	036M	039	040M	046M	036	038M	040M	030M	027M	035M	026M	023	S	M
037M	035M	041M	042M	034M	055M	040M	039M	M	043M	032M	023M	033M	031M	025M	029M
036	035M	036	038M	040M	039M	S	035	G	030	S	026	024	025	S	S
B	DO32R	035M	041M	040	038	039	046M	050	070	060	050M	025	025	024	S
033M	B	034M	039M	040M	040M	040M	A	050M	060M	050M	050M	028M	030	026	S
031	035	041M	A	A	045M	045M	045M	035M	028M	027	030	024	S	026	024
033M	035	041M	A	050M	046M	060M	040M	036M	051M	025	M	026	S	B	S
032	040M	045M	040M	040M	037M	G	040M	039	032	025	024	S	S	S	S
030	039	039M	040	040M	040M	041	036	033M	030M	028	030M	S	S	S	S
C	C	C	C	040	040	DO35R	038	032	070M	051M	024M	040M	025M	-	S
A	058M	050M	040M	045M	037M	040	033	055M	030M	026	S	S	S	S	S
032	B	033	041M	050M	040M	044M	042	039	056	036	027	B	-	S	S
030	DO32R	038	A	048M	040M	041	044	039	5	-	027	S	S	S	S
G	035	040	040	040	DO35R	035	034	DO27R	034M	040M	029M	S	S	S	S
031	034	035M	036	040	G	C	C	B	029	026M	032	S	035	023	S
033	036	046	047	040	041	040M	039	033	042M	070M	053M	031M	027	026	M
034	034	B	037M	038M	B	G	035M	033	C	C	C	C	C	C	027
031	036	036	G	037	037	C	034	DO30R	031	040	028	S	S	-	S
030	033	036	035M	042	G	G	035	040M	060	034M	047M	030	022	-	026
030	034	046	046	A	050M	044	DO29R	DO31A	030	042	-	022	032	027	026
032M	037	B	037	039	055M	040	040	032	030	S	B	S	S	S	S
030	037M	040M	040	038	037	DO31R	039	031	055M	S	S	023	-	029	A
030	C	C	C	042M	DO35R	B	G	034	030	032M	026	024M	023	027M	022
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
032	035	040	040	040	040	040	038	034	032	032	030	026	026	026	026
25	26	25	24	28	27	21	25	25	27	23	20	13	12	8	7
033	037	044	044	044	046	042	040	039	051	040	044	030	031	027	027
030	034	036	038	040	038	036	035	033	030	027	027	024	023	025	024
3	3	8	6	4	8	6	5	6	21	13	17	6	8	2	3



Characteristic: foEs

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	B	S	023*	018	B	B	S	B	034	034	047	058	055M	047
2	S	S	B	B	025	021	S	029	048M	047	055	090M	080M	070M
3	S	B	B	B	016	S	038	030	031	037	055M	045	040	057
4	034	016	016	018	D012R	020	S	040M	039	041	052M	055M	075M	055M
5	029	027	S	S	026	047M	S	043M	033	045M	078M	110M	090M	100M
6	S	S	017	015	E	S	S	G	032	039	041	046	040	055M
7	030	025	025M	026	023	036M	057M	090M	070M	070M	075M	090M	140M	090M
8	S	-	029	023M	025M	043M	S	038M	034	039	042M	039	085M	082M
9	S	S	021M	B	B	S	S	030M	043M	043M	055M	076M	067M	110M
10	033M	059	060	096M	073M	052M	063	058M	097	048M	040	075M	075M	075M
11	S	S	S	020	013	S	S	S	B	D032R	075M	070M	046	040
12	S	S	S	018	016	S	S	027	044M	B	075M	070M	070M	070M
13	035	019	B	017	025	025	024	035	038	039	075M	100M	100M	100M
14	S	S	B	B	037M	027M	S	029M	034M	035	057M	100M	076M	100M
15	S	B	048M	020	B	030	040	050	049	065M	095M	050M	055M	050M
16	025	S	S	016	019	S	S	031	042	046	060M	050	060M	056M
17	S	017	031	026	031	045	034	033	C	C	C	C	045	040
18	S	026	021	020	050M	080M	038	050	100M	090M	100M	058M	060M	057M
19	S	S	B	B	030	030	045M	050M	036	B	033	075M	080M	070M
20	S	S	030	031M	026	036M	046	047	032	D032R	056	085M	095M	075M
21	S	S	S	E	017	036	038	G	040	040	044	047	047	D035R
22	S	024	017	018	026	B	031	036	040	047	050M	040	050	G
23	S	030	022	022	047M	047M	036	038	042	037	070	050	045	055
24	S	031	031	050M	050M	050M	037	034	034	038	B	064M	055M	B
25	032	036	017	038M	021	044M	047M	035	031	036	036	G	037	037
26	021	B	E	B	B	B	022	048M	032	033	040	046M	044	G
27	050M	D022R	024	026	049M	036	S	027	040	040	050	060	190M	100M
28	029	029	038	B	025	020	S	030	044M	037	B	045	047	090M
29	048	030	B	B	E	021	S	034	037	050M	050M	047	038	045
30	021	S	042M	022	035	035	046M	030	038	C	C	C	085M	D035R
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	031	027	024	021	026	036	038	035	038	040	055	058	060	057
Count	12	14	18	20	23	21	16	27	27	26	26	27	30	27
UQ	034	030	031	026	037	046	046	047	044	047	075	076	080	090
LQ	027	022	021	018	021	023	033	030	034	037	044	047	046	047
QR	7	8	10	8	16	23	13	17	10	10	31	29	34	43

\* Tabulation of 023 = 2.3 Mc.

A

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
034	034	047	058	055M	047	B	045	048M	048M	045M	B	B	B	B	S
048M	047	055	090M	080M	070M	055M	044	044	038	039	035	028	S	S	S
031	037	055M	045	040	057	B	C	036	037	036M	S	S	037	S	S
039	041	052M	055M	075M	055M	041	C	060M	048M	070M	085M	035	S	038	031
033	045M	078M	110M	090M	100M	090M	095M	075M	088M	035	040	S	026	032	S
032	039	041	046	040	055M	037	041	B	055M	043M	S	S	S	034	S
070M	070M	075M	090M	140M	090M	040	036	065	037	043	S	S	S	S	S
034	039	042M	039	085M	082M	058	084M	070M	060M	036M	043M	034M	029	S	027M
048M	043M	055M	076M	067M	110M	068M	082M	068M	057M	077M	063M	055M	043M	039M	033M
097	048M	040	075M	075M	075M	S	035	G	030	S	032	038	030	S	S
B	D032R	075M	070M	046	040	039	062M	065	080	140	110M	036	030	026	S
044M	B	075M	070M	070M	070M	090M	120M	095M	100M	080M	060M	042M	035	035	036
038	039	075M	100M	100M	100M	060M	075M	060M	045M	034	040	024	S	S	S
034M	035	057M	100M	076M	100M	080M	065M	060M	075M	034	048M	032	S	B	S
049	065M	095M	050M	055M	050M	G	070M	047	035	038	028	S	S	S	S
042	046	060M	050	030M	056M	040	036	047M	047M	038	050M	S	S	S	S
C	C	C	C	045	040	D035R	047	036	100M	090M	035M	065M	047M	026	S
100M	090M	100M	058M	060M	057M	049	038	075M	070M	030	S	S	S	S	S
036	B	033	075M	080M	070M	070M	048	044	060	047	027	B	025	S	S
032	D032R	056	085M	095M	075M	067	057	047	S	042	034	S	S	S	S
G	040	044	047	047	D035R	035	057	D027R	080M	058M	045M	S	S	S	S
040	047	050M	040	050	G	C	C	B	032	045M	032	S	047	029	S
042	037	070	050	045	055	054M	039	046	075M	100M	064M	043M	039	028	045M
034	038	B	064M	055M	B	G	045M	037	C	C	C	C	C	C	033
031	036	036	G	037	037	C	034	D030R	038	045	034	S	S	020	S
032	033	040	046M	044	G	G	035	085M	070	046M	047M	036	022	021	042
040	040	050	060	190M	100M	047	D029R	D031A	034	050	041	037	045	033	042
044M	037	B	045	047	090M	050	053	038	032	S	B	S	S	S	S
037	050M	050M	047	038	045	D031R	046	040	080M	S	S	025	026	038	039
038	C	C	C	085M	D035R	B	G	035	030	043M	026	036M	027	045M	029
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
038	040	055	058	060	057	050	047	047	052	044	040	036	032	033	035
27	26	26	27	30	27	21	26	27	28	26	22	15	14	14	10
044	047	075	076	080	090	068	065	065	075	058	050	042	043	038	042
034	037	044	047	046	047	040	038	037	037	038	034	032	026	026	031
10	10	31	29	34	43	28	27	28	38	20	16	10	17	12	11

B

Characteristic: h'Es

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	B	S	100*	100	B	B	S	B	110	110	100	100	100	100
2	S	S	B	B	100	100	S	120	100	100	100	100	100	100
3	S	B	B	B	130	S	110	120	100	110	100	100	100	100
4	140	100	110	140	130	130	S	120	140	140	140	U110S	110	100
5	130	110	S	S	110	110	S	110	110	110	110	100	105	105
6	S	S	100	100	E	S	S	G	160	100	100	U100S	110	100
7	113	110	110	110	110	100	110	115	110	110	110	100	100	100
8	S	455	310	385	110	110	S	115	120	110	110	110	105	110
9	S	S	100	B	B	S	S	110	104	110	120	105	110	110
10	055	092	100	110	145	-	107	112	110	110	105	100	100	100
11	S	S	S	112	115	S	S	S	B	105	120	110	110	110
12	S	S	S	110	105	S	S	130	125	B	100	100	100	105
13	100	100	B	120	120	115	120	120	115	118	100	100	100	100
14	S	S	B	B	100	105	S	108	110	150	110	115	100	100
15	S	B	117	130	B	120	118	118	118	108	100	100	100	100
16	110	S	S	115	120	S	S	120	110	110	130	100	100	100
17	S	130	120	120	110	110	110	110	C	C	C	C	110	110
18	S	100	100	100	110	100	100	100	105	102	100	100	100	100
19	S	S	B	B	100	100	105	100	110	B	105	100	100	100
20	S	S	115	110	115	110	110	110	110	115	100	100	100	100
21	S	S	S	E	E	120	120	120	G	110	105	110	110	110
22	S	120	120	115	120	B	120	115	120	120	105	105	110	G
23	S	130	100	100	120	110	115	115	120	110	110	110	110	110
24	S	140	120	125	110	115	130	120	120	120	B	110	115	B
25	100	100	100	120	090	110	110	110	110	100	110	G	110	110
26	110	B	E	B	B	B	120	110	120	125	120	110	160	G
27	110	100	100	100	110	110	S	110	110	110	100	100	100	100
28	100	100	100	B	105	105	S	120	110	120	B	100	100	100
29	120	130	B	B	E	110	S	110	110	110	110	110	110	110
30	120	S	125	110	120	115	115	125	110	C	C	C	110	115
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	110	110	105	111	110	110	112	115	110	110	105	100	102	100
Count	12	15	18	20	23	30	16	27	27	26	26	27	30	27
UQ	120	130	120	120	120	115	120	120	120	118	110	110	110	110
LQ	100	100	100	105	105	105	110	110	110	110	100	100	100	100
QH	20	30	20	15	15	10	10	10	10	8	10	10	10	10

\* Tabulation of 100 = 100 km.

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
110	110	100	100	100	100	B	100	100	100	100	B	B	B	B	S
100	100	100	100	100	100	100	100	100	100	100	100	100	S	S	S
100	110	100	100	100	100	B	C	100	090	105	S	S	100	S	S
140	140	140	U110S	110	100	180	C	130	130	100	100	100	S	100	100
110	110	110	100	105	105	110	105	100	100	100	100	S	100	U110S	S
160	100	100	U100S	110	100	110	130	B	100	120	S	S	S	150	S
110	110	110	100	100	100	105	110	105	105	105	S	S	S	S	S
120	110	110	110	105	110	110	110	105	105	100	100	100	100	S	100
104	110	120	105	110	110	115	105	S	100	100	100	100	100	100	100
110	110	105	100	100	100	S	110	G	115	S	100	100	100	100	100
B	105	120	110	110	110	170	135	125	120	110	110	100	100	S	S
125	B	100	100	100	105	100	100	100	100	100	100	105	S	105	S
115	118	100	100	100	100	100	100	100	100	100	100	105	105	106	100
110	150	110	115	100	100	100	100	100	100	100	100	100	S	S	S
118	108	100	100	100	100	100	100	100	100	110	100	100	S	B	S
110	110	100	100	100	100	G	100	100	130	100	100	S	S	S	S
C	C	C	C	110	110	100	105	100	100	100	100	S	S	S	S
105	102	100	100	100	100	100	110	120	110	110	110	105	105	108	S
110	B	105	100	100	100	100	100	100	100	100	S	S	S	S	S
110	115	100	100	100	100	100	100	100	100	100	100	B	120	S	S
G	110	105	110	110	110	110	105	100	100	100	100	S	S	S	S
120	120	105	105	110	G	C	C	B	110	110	100	S	S	S	S
120	110	110	110	110	110	110	150	110	100	100	100	100	100	100	120
120	120	B	110	115	B	G	110	115	C	C	C	C	C	C	100
110	100	110	G	110	110	C	105	110	100	100	100	S	S	135	S
120	125	120	110	160	G	G	130	110	110	110	100	100	100	100	100
110	110	100	100	100	100	100	105	160	120	110	140	110	100	190	105
110	120	B	100	100	100	100	100	130	115	S	B	S	S	S	S
110	110	110	110	110	110	110	110	115	100	S	S	120	120	110	115
110	C	C	C	110	115	B	G	130	130	120	120	115	110	110	110
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
110	110	105	100	102	100	100	105	102	100	100	100	100	100	105	100
27	26	26	27	30	27	21	26	26	28	26	22	15	14	14	10
120	118	110	110	110	110	110	110	115	112	110	100	105	105	110	110
110	110	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10	8	10	10	10	10	10	10	15	12	10	0	5	5	10	10

B

Characteristic: Type of Es

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1963

Observed at:

Bangkok, Thailand

Lat. 13.73° N, Long. 100.57° E

105° E Mean Time (GMT + 7 hours)

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13
1	-	-	f2	f	-	-	-	-	f	-	f2	f3	f	f
2	-	-	-	-	f4	f1	-	-	f	-	f2	f3	f2	f3
3	-	-	-	-	f	-	-	-	f	-	f2	f3	f2	f3
4	f	f	f	f2	f2	f	-	-	f	-	f2	f3	f	f
5	f	f2	-	-	f2	f3	-	-	f	-	f2	f3	f2	f3
6	-	-	f	f	-	-	-	-	f	-	f2	f3	f2	f3
7	f	f2	f2	f2	f	f	f2	-	f	-	f2	f3	f2	f3
8	-	n	n	n	f2	f2	-	-	f	-	f2	f3	f2	f3
9	-	-	f	-	-	-	-	-	f	-	f2	f3	f2	f3
10	f3	f4	f3	f	f3	f4	f2	f2	f2	-	f2	f3	f	f4
11	-	-	-	f2	f	-	-	-	-	-	f2	f3	f	f
12	-	-	-	f	f	-	-	-	-	-	f2	f3	f	f
13	f	f	-	f	f	f	-	-	f	-	f2	f3	f	f
14	-	-	-	-	f2	f3	-	-	f	-	f2	f3	f4	f3
15	-	-	f	f	-	f2	f4	-	f	-	f2	f3	f4	f3
16	f	-	-	f	f	-	-	-	f	-	f2	f3	f	f
17	-	f	f2	f	f4	f2	f2	-	f	-	-	-	f	f2
18	-	f2	f2	f3	f3	f4	f	f4	f4	-	f3	f2	f	f2
19	-	-	-	-	f2	f2	f	f4	f	-	-	f2	f2	f2
20	-	-	f3	f3	f2	f4	f4	f3	-	-	f	f2	f2	f2
21	-	-	-	-	-	f	f	f	-	-	f	f	f	f
22	-	f	f	f	f2	-	f2	f	-	-	f	f	f	f
23	-	f2	f2	f3	f3	f3	f2	-	f	-	f	f	f	-
24	-	f	f2	f2	f4	f4	f	-	f	-	f3	f2	f	f2
25	f2	f2	f	f2	f	f3	f3	-	f	-	-	f	f	-
26	f	-	-	-	-	-	-	-	f	-	f	-	f	-
27	f2	f4	f2 f3	f3	f4	f3	-	-	f	-	f3	f2	f	f3
28	f2	f2	f3	-	f2	f2	-	-	f	-	-	f	f	f4
29	f2	f	-	-	-	f2	-	-	f	-	f	f	f	f
30	f	-	f	f	f5	f4	f4	-	-	-	-	-	f2	f
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Count	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LQ	-	-	-	-	-	-	-	-	-	-	-	-	-	-
QR	-	-	-	-	-	-	-	-	-	-	-	-	-	-

# IONOSPHERIC DATA

Sweep: 1 Mc to 25 Mc in 0.5 minute

June 1965

08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
l	l	l2	l3	l	l	-	l	l	l	l	-	-	-	-	-
lc	l2	l3	l4	l2	l3	lh	l3	l3	l2	l2	f2	f	-	-	-
l	l	l2	l	l	lc	-	-	l	lc	l	-	-	f2	-	-
c	cl	c	lc	c2	l	c	c	cl	cl	l2	f6	f	-	f	f3
c	c	c3	l3	l3	l3	l3	l4	l4	l3	f2	f2	-	f	f	-
c	lc	l	l	c	lc	c	cl	-	l	c2	-	-	-	f	f
c2	c4	c2	l3	c3	l3	c2	c	lc	lc	l	-	-	-	-	-
c	l	l	cl	l	l2	l2	l2	l3	l4	l2	f5	f4	f	-	-
l2	l	l2	l2	l	l4	l2	l2	-	l4	l6	f3	f5	f4	f3	l
l2	l	l	l	lc	l	-	c	-	l	-	f3	f	f	-	f3
-	l	l3	l2	l	l	cl	c	c3	c6	f6	f7	f3	-	f2	-
l	-	l	l	l	l	l2	l4	l4	l5	l5	f4	f4	f2	f5	f
l	l	l2	l3	l4	l3	l3	l3	l2	l2	l	f3	f	-	-	-
l	hc	c2	c4	c3	c3	l3	l2	l2	l6	l2	f2	f3	-	-	-
l	l	l3	l	l	l	-	lc	lc	c	l	f	-	-	-	-
l	l2	l	l	l	l2	l2	l	l	l2	f2	f5	-	-	-	-
-	-	-	-	c	l	c	c	c	c8	f6	f3	f2	f2	f2	-
l4	l3	l4	l2	l3	l2	l3	l	l4	l2	f2	-	-	-	-	-
l	-	l	l2	l3	l2	l2	l3	l2	l5	f3	f	-	f	-	-
c	c	l	l	l2	l	l	l2	l3	-	l	f	-	-	-	-
-	l	l	c	c	c	c	l	c	l3	f2	f2	-	-	-	-
l	l	l	l	l	-	-	-	-	l	l	f4	f	f6	f2	-
c	l	c3	c2	c	c2	c	hc	l2	l3	f8	f8	f4	f3	f	f
c	c	-	lc	c	-	-	l	l	-	-	-	-	-	-	f3
c	c	c	-	c	c	-	c	c	l2	l2	f3	f	-	f	-
l	c	l	l	c	-	-	ch	l3	l6	f5	f10	f5	f	f	f2
l	l	l3	l2	l5	l3	l2	c	hc	c	c3	f	f	f3	f	f2
c	c	-	lc	l	l4	l	l3	c	cl	-	-	-	-	-	-
c	c	l	c	c	l	c	l2	l	l5	-	-	f2	f	f5	f2
l	-	-	-	c2	c	-	-	c	c	c	f2	f2	f2	f2	f
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

# MEDIAN VALUES JUNE 1965

Hour Local	fmin (Mc)	foF2 (Mc)	M(3000)F2	h'F2 (km)	h'F (km)	foF1 (Mc)	M(3000)F1	foE (Mc)	h'E (km)	fbEs (Mc)	foEs (Mc)	h'Es (km)
00	2.2	3.4	3.00	-	320	-	-	-	-	2.5	3.1	110
01	1.6	3.3	3.18	-	298	-	-	-	-	1.9	2.7	110
02	1.4	2.7	3.15	-	300	-	-	-	-	1.7	2.4	105
03	1.4	2.5	3.17	-	300	-	-	-	-	1.5	2.1	111
04	1.3	2.1	3.30	-	280	-	-	-	-	1.4	2.6	110
05	1.7	2.3	3.45	-	260	-	-	-	-	-	3.6	110
06	2.3	3.9	3.30	-	260	-	-	-	-	2.8	3.8	112
07	2.4	5.9	3.10	276	233	-	-	2.8*	-	2.9	3.5	115
08	2.5	6.9	2.88	310	210	4.1	3.80	2.8	115	3.2	3.8	110
09	2.8	7.0	2.60	350	200	4.3	3.85	3.0	-	3.5	4.0	110
10	3.0	6.9	2.40	410	200	4.4	3.95	3.4*	-	4.0	5.5	105
11	3.0	6.4	2.42	440	200	4.5	4.10	3.3*	-	4.0	5.8	100
12	3.0	6.6	2.50	440	200	4.5	4.10	3.5	-	4.0	6.0	102
13	3.0	6.7	2.50	420	200	4.5	4.10	-	112	4.0	5.7	100
14	3.0	7.1	2.50	400	200	4.4	4.00	3.4	120*	4.0	5.0	100
15	2.7	7.5	2.53	375	215	4.3	3.92	3.4	120	3.8	4.7	105
16	2.5	8.0	2.65	350	210	4.2	3.75	3.0	120	3.4	4.7	102
17	2.5	8.2	2.75	330	230	4.0	3.60	-	-	3.2	5.2	100
18	2.3	8.5	2.90	-	255	-	-	-	-	3.2	4.4	100
19	2.3	8.7	3.25	-	250	-	-	-	-	3.0	4.0	100
20	2.3	7.5	3.20	-	242	-	-	-	-	2.6	3.6	100
21	2.3	6.2	3.30	-	250	-	-	-	-	2.6	3.2	100
22	2.3	4.7	3.20	-	270	-	-	-	-	2.6	3.3	105
23	2.2	3.6	3.05	-	300	-	-	-	-	2.6	3.5	100

\* Insufficient data for reliable median.

IONOSPHERIC DATA  
MONTHLY MEDIAN CHARACTERISTICS  
BANGKOK, THAILAND  
JUNE 1965

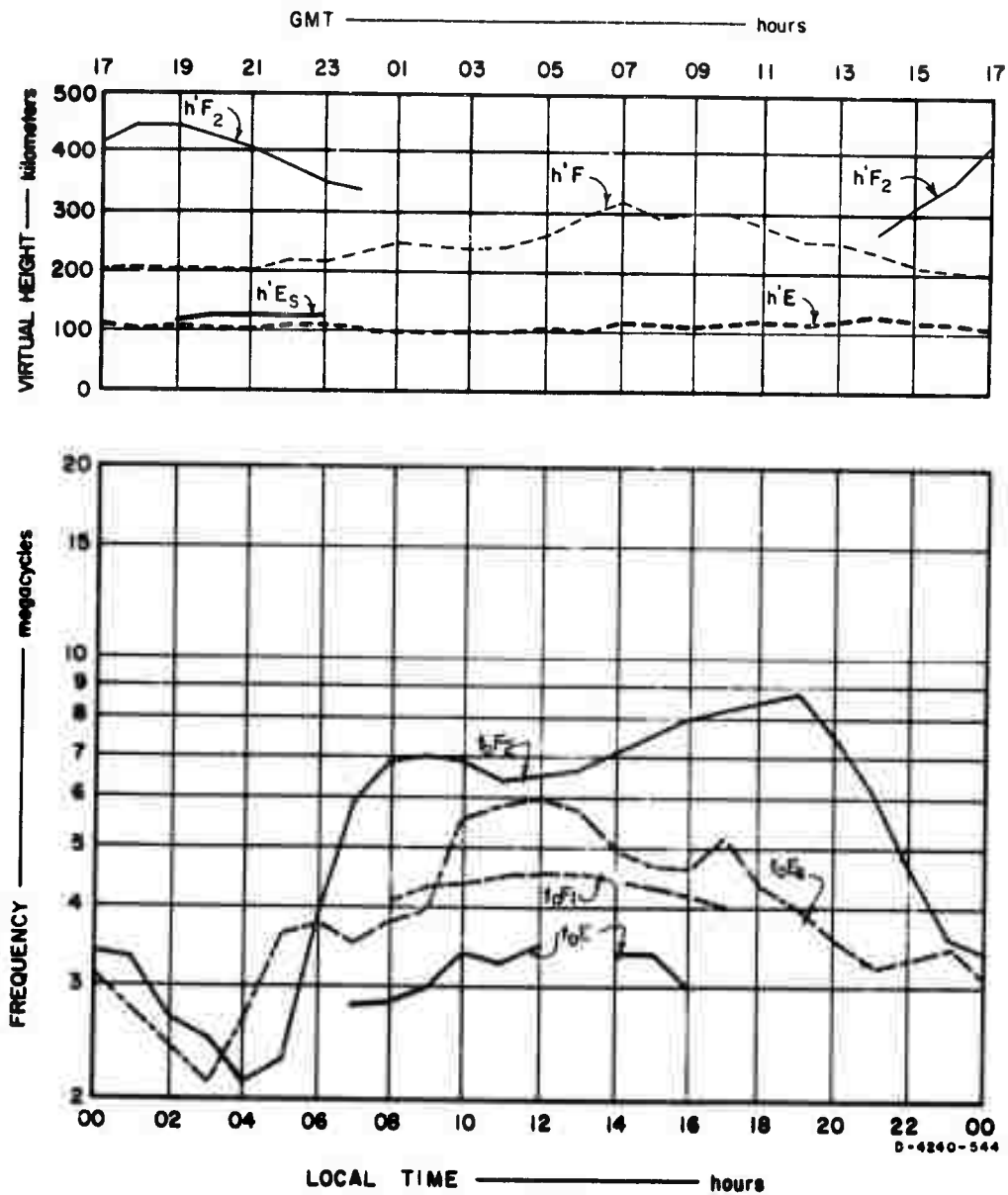


FIG. 1 SUMMARY GRAPHS



**STANFORD  
RESEARCH  
INSTITUTE**

**MENLO PARK  
CALIFORNIA**

## **Regional Offices and Laboratories**

### **Southern California Laboratories**

820 Mission Street  
South Pasadena, California 91031

### **Washington Office**

808-17th Street, N.W.  
Washington, D.C. 20006

### **New York Office**

270 Park Avenue, Room 1770  
New York, New York 10017

### **Detroit Office**

1025 East Maple Road  
Birmingham, Michigan 48011

### **European Office**

Pelikanstrasse 37  
Zurich 1, Switzerland

### **Japan Office**

Nomura Security Building, 6th Floor  
1-1 Nihonbashidori, Chuo-ku  
Tokyo, Japan

## **Retained Representatives**

### **Toronto, Ontario, Canada**

Cyril A. Ing  
67 Yonge Street, Room 710  
Toronto 1, Ontario, Canada

### **Milan, Italy**

Lorenzo Franceschini  
Via Macedonio Melloni, 49  
Milan, Italy